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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,075	09/29/2000	Gregory J. Kostrzewsky	99RE055	2141

7590 11/18/2003

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EXAMINER

JOYCE, WILLIAM C

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/677,075

Applicant(s)

KOSTRZEWSKY ET AL.

Examiner

William C. Joyce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-24, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 and 27 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-17 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the amendment filed July 14, 2003 for the above identified patent application.

1. The indicated allowability of original claim 18 (now cancelled) is withdrawn in view of the new combination of reference(s) of Waldner, Jr. (US Patent 5,927,384) and Padgett et al. (US Patent 1,968,618). Rejections based on the newly combined reference(s) follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 5-15, 17, 19, 20, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable Waldner, Jr. (US Patent 5,927,384) in view of Padgett et al. (US Patent 1,968,618).

Waldner discloses a differential gearbox comprising a conductive housing, driving axles (4) for transmitting torque to a pair of vehicle wheels, a bearing element (not shown) disposed within the housing for supporting the driving shafts, at least one motor driven fan (24) mounted to the housing, lubricating oil disposed in the housing for

lubricating the gearbox components (not shown), a thermocouple (29) positioned adjacent one of the driving axles (4) and its respective bearing for determining a temperature of the oil in the housing, a controller (56) operatively connected to the thermocouple for operating the fan, wherein the fan is adapted to transfer heat from the bearing housing by forced convection. Referring to column 4, lines 52+, Waldner discloses "the thermocouple may be wired to an automatic or programmable fan control switch to provide an automatic or programmable fan control switch to provide automatic cooling when the lubricant reaches a preselected temperature level and automatic shutdown when the lubricant falls to a preselected temperature lever."

Waldner does not clearly disclose the internal structure of the differential, such as the positioning of the bearings or the positioning of an oil sump to provide oil to the bearings. However, it was notoriously well known in the art to configure a vehicle differential with an oil sump for lubricating bearings within the differential gearbox. For example, Padgett et al. illustrates the internal structure of a known differential having bearings (22) supplied with lubricating oil from a sump, wherein oil in the sump is picked up by the ring gear (45) and splashed onto the bearings (22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the gearbox of Waldner such that the lubricant from an oil sump is supplied to bearings of the differential, as taught by Padgett et al., in order to provide a reliable means for transmitting torque to a pair of vehicle wheels.

With respect to claims 11-15, Waldner does not disclose the gear reduction housing having a pair of fans for transferring heat from the housing. It would have been

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obvious to one of ordinary skill in the art at the time the invention was made to provide two fans on the housing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Further, it would have been obvious to an engineer in the art at the time the invention was made modify the device of Waldner by providing a second fan on the housing and a second adjustable control circuit to control the fan operation, in order to increase the heat transfer from the housing.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waldner, Jr. (US Patent 5,927,384) and Padgett et al. (US Patent 1,968,618) in view of Müller (US Patent 4,806,832).

As described above, the prior art to Waldner and Padgett et al. provide teachings for providing a cooling fan connected to a differential housing for controlling the temperature of the transmission components, such as bearings, gears, and shafts. Waldner further teaches controlling the fan with a thermocouple in the drive housing, but does not teach the fan having variable speed control. It was well known in the art to control the speed of a fan to control the amount of airflow produced by the fan. For example, the prior art to Müller teaches that it was well known in the art to vary the speed of a fan to control the amount of air flow produced by the fan (see "Background of the Invention" and "Summary of the Invention"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of Waldner such that the fan has multiple operating speeds, as taught by Müller, in order to provide adequate cooling of the housing without consuming excessive electricity.

Allowable Subject Matter

5. Claims 26-27 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (703) 305-5114. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci can be reached on (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


William C. Joyce 11/12/03